

NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: January 23, 1980

Forwarded to:

Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D. C. 20591

SAFETY RECOMMENDATION(S)

A-80-9 and 10

On December 15, 1979, a Hughes 269C helicopter crashed 2 miles west of West Milton, Ohio, fatally injuring the pilot who was the only person on board the aircraft.

Preliminary investigation has indicated that an in-flight separation of the tailboom occurred at the P/N 269A2324-7 tailboom center attach fitting. The center attach fitting broke into more than three pieces that separated with the left and right tailboom support struts. The forward end of the fitting was attached to the tailboom tube by 16 rivets, with 8 rivets on each side of the fitting centerline. Fracture of the P/N 269A2324-7 fitting occurred in the web portion between the forward center portion and the left and right ends, incorporating the first three rivets forward on the left side and the second through fifth rivets forward on the right side. A preliminary metallurgical examination of the fitting fracture disclosed evidence of a large preexisting fatigue crack through approximately 90 percent of the left side fracture. High cycle, low stress fatigue crack initiations occurred at the intersection of the rivet holes and top surface of the web which mates with the tailboom tube, at the top surface of the web at the forward faying surface of the tailboom tube, and at the top surface of the flange in the forward center section of the fitting between the strut lugs. The fracture on the right side of the fitting showed evidence of a high stress, low cycle fatigue crack initiating in the web just forward of the rivets. Initiation of the right side fatigue crack was along the faying surface adjacent to the tube with fatigue progression through the fitting web thickness in the downward direction. The right side fracture appeared secondary to the left side fracture. Metallurgical examination of this component is continuing.

The accident aircraft, N7483F, S/N 584, had an upgraded P/N 269A2324-7 tailboom center attach fitting which had been redesigned with increased thickness in the forward lugs to make it less susceptible to cracks and structural damage than the original fitting P/N 269A2324 design. Hughes Service Information Notice (HSIN) No. N-82.3, dated September 19, 1977, prescribed an inspection of the center section fitting and other fittings in the area of the lugs but expressly states that the redesigned P/N 269A2324-7 fitting (factory equipped on all model 269C helicopters) is not subject to that notice. Moreover, HSIN No. N-82.3 does not pertain to any model 269C having a serial number greater than 569 and, therefore, was totally inapplicable to the accident aircraft.

FAA Airworthiness Directive 76-18-01, Amendment 39-2707, required inspection of the P/N 269A2324 fittings but excludes any examination of the redesigned P/N 269A2324-7 fittings. Therefore, no inspection requirements by airworthiness directive or HSIN exist for the P/N 269A2324-7 fitting.

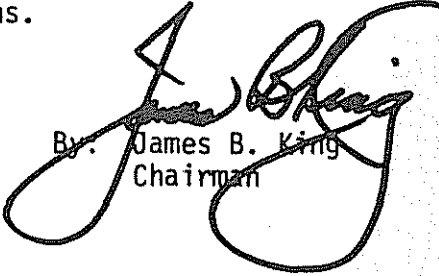
Separation of the P/N 269A2323-7 fitting will result in loss of the helicopter flight controllability.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Require an immediate inspection of all tailboom center section fittings, P/N 269A2324-7, installed in Hughes model 269 helicopters for evidence of cracks. (Class I, Urgent Action) (A-80-9)

Establish a schedule for recurring inspections of that fitting based on an appropriate number of operating hours. (Class I, Urgent Action) (A-80-10)

KING, Chairman, DRIVER, Vice Chairman, MCADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations.


By: James B. King
Chairman